Surveying Free and Low-Cost Survey Software

Olivia Carter-Pokras, PhD; Leah McClellan; and Ruth E. Zambrana, PhD
Baltimore and College Park, Maryland

Surveys are widely used to gather health information from a sample of individuals. This brief report reviews 14 free and low-cost software packages (<$1,000) that can be used when conducting health surveys with a limited budget. Information available on the Internet or directly from the provider in response to inquiry was reviewed for key features used by health survey researchers. Many free or low-cost software options appropriate for questionnaire development are readily available. Questionnaire mode and complexity, data management and analytical needs, and computing environment are all important considerations in selecting survey software.

Key words: health surveys ■ questionnaires ■ software ■ research design

 From University of Maryland School of Medicine, Department of Epidemiology and Preventive Medicine, Baltimore MD (Carter-Pokras, McClellan) and University of Maryland College Park, MD (Zambrana). Send correspondence and reprint requests for *J Natl Med Assoc.* 2006;98:881–886 to: Dr. Olivia Carter-Pokras, Associate Professor, Department of Epidemiology and Preventive Medicine, University of Maryland School of Medicine, Howard Hall, Room 140C, 660 W. Redwood St., Baltimore, MD 21201; phone: (410) 706-0463; fax: (410) 706-4425; e-mail: opokras@epi.umaryland.edu

INTRODUCTION

The training of historically underrepresented minority (URM) researchers is a central concern in schools of medicine and public health.[1,2] Blacks, Mexican Americans, Native Americans (that is, American Indians, Alaska Natives and Native Hawaiians), and mainland Puerto Ricans represent <10% of all full-time tenure track positions in U.S. medical schools.[2] Data show that minority faculty are less likely to hold senior positions than white faculty.[3-5] Multiple reasons have been found for this disadvantage in hiring and promotion opportunities. These include lack of mentoring, lack of access to resources, and excessive clinical and administrative responsibilities that lead to a disadvantage in competing for research grants (often a component in getting tenure).

Free or low-cost software to develop surveys can be an important initial resource for researchers knowledgeable and interested in conducting health surveys but hindered by a lack of resources. Surveys are widely used as a method of gathering health information from a sample of individuals. Many junior faculty and underrepresented clinical and medical school faculty with knowledge and experience in health survey research methods have access to low-income and at-risk populations that have been understudied. Access to free or low-cost survey software may enhance opportunities for these physicians to conduct studies that provide new knowledge regarding factors that contribute to health disparities.

This brief report reviews free and low-cost software packages designed specifically for the development of questionnaires and survey implementation that can be used by researchers when conducting health surveys with a limited budget.

METHODS

An Internet search was performed, using the search engine Google and the phrases: "survey design software", "free survey design software" and "survey software." We excluded software for which pricing was unavailable (information not available

on the Internet and phone calls not returned) or the cost was >$1,000. In addition, we excluded software that was available only by site license, specific to handheld computers or limited to computer-assisted-telephone-interview (CATI). Product information available on the Internet or directly from the provider in response to inquiry was reviewed. Features assessed included: number of allowable questions and responses, storage time of results, administration mode, multiple language features, type of data supported, analytical/statistical capabilities, reports and graphics, resources for research methods, help services, data dictionary, data verification, data editing or deleting capabilities, and spell check.

RESULTS

Fourteen software products were identified (Table 1), including four survey design programs[6-9] that house both questionnaires and data on the software providers' server (web-based), and 10 software products[10-19] that can be downloaded and run directly from a personal or business computer or server (nonweb-based).

Features of web-based and nonweb-based questionnaire design software are shown in Tables 2 and 3. All web-based programs support online and paper questionnaire administration (Zoomerang also supports computer-assisted and telephone modes), multiple languages and quantitative data; and produce some type of data summary. Monthly pricing of the web-based questionnaire design software allows subscriptions to be cancelled during inactive research periods.

Limitations of web-based programs include allowable number of records, items per questionnaire and storage time of responses. Sending electronic questionnaire files to colleagues and institutional review boards may be difficult since these web-based programs are not compatible with word-processing applications. Web-based programs may limit features such as spell check, skip patterns, random presentation of questions, data dictionary and

Table 1. Free or low-cost survey software packages

Software Package	Cost	Website
Survey Monkey	Basic: free, Professional: $19.95/month	www.surveymonkey.com/
freeonlinesurveys.com	Basic: free, Upgrade: $19.99/month, students/teachers: $9.99	www.freeonlinesurveys.com/
QuestionPro	free, $49/month, $149/month, $299/month	www.questionpro.com/
Zoomerang	Basic: free, zpro: $599/year, nonprofit and educational members: $350/year	http://info.zoomerang.com/
SelectSurveyASP	Basic: $99.99, Advanced: $179.99	www.classapps.com/SelectSurvey/ASPOverview.asp
Epi Info	free	www.cdc.gov/epiinfo/
CS Pro	free	www.census.gov/ipc/www/cspro/index.html
EZ-Text	free	www.cdc.gov/hiv/software/ez-text.htm
ANSwer	free	www.cdc.gov/hiv/software/answr.htm
SurveyGold	Individual: $149–299	http://surveygold.com/
QDS	Individual: $295–495	www.novaresearch.com/Products/QDS/whatIsQDS.cfm
Sumquest	$495	www.sumquest.com/
StatPac	Web survey module: $495, Basic statistics module: $695	www.statpac.com/
Sphinxsurvey	Basic: $891	www.sphinxdevelopment.co.uk

field validation. Although web-based programs produce frequencies, data must be downloaded to analytical software (e.g., Excel®, SPSS®) for more advanced statistics. Most of the online packages do not support data editing, variable construction, recoding or sorting. All help centers provide technical assistance via e-mail.

Since the user typically purchases the software, nonweb-based software does not expire and offers greater flexibility regarding the number of records and items per questionnaires, storage time of results, questionnaire editing, performing analyses, and generating outcomes and reports. The primary limitations of nonweb-based software are increased complexity and sometimes greater expense.

Nonweb-based software supports more complex survey and questionnaire design and analyses than web-based software and is compatible with word-processing applications. Nonweb-based software supports both quantitative and qualitative data, and offers more options for mode of administration. There are no limitations on allowable number of records or items per questionnaire, or storage time of responses. Most programs do not require export of data to a statistical software package and provide features, including random number generators, sample size calculators and data validation.

CONCLUSIONS AND RECOMMENDATIONS

Many free or low-cost software options appropriate for questionnaire development are readily available. Survey size and duration; mode, complexity and language of questionnaire; data management and analytical needs; and computing environment are all important considerations in selecting software.

Specific recommendations based on these five considerations are presented.

Size and Duration

For small, quick or uncomplicated questionnaires, most of the web-based options are useful (e.g., SurveyMonkey). For a larger scale study, consider nonweb-based software since software access does not expire.

Table 2. Assessment of web-based survey software package features

	Survey Monkey	Freeonlinesurveys.com	QuestionPro	Zoomerang
Survey size				
Number of questions	10 or unlimited	20 or unlimited	unlimited	30 or unlimited
Number of responses	100/month, unlimited	50 or 1,000	5,000, 10,000, or 15,000	100 or unlimited
Storage time of results	unlimited	10 days or subscription	subscription	10 days or subscription
Survey type	web, paper	web, paper	web, email, paper	web, email, CAPI, CATI, paper
Multiple languages	yes	yes	yes	yes
Translation	no	no	no	yes ($)
Type of data	quantitative	quantitative	quantitative	quantitative
Analyses and output	frequency counts	frequency counts	frequency counts	frequency counts
Statistics	none	none	descriptive	none
Skip patterns	yes ($)	yes ($)	yes	yes
Required response	yes	yes	yes	yes
Missing response allowed	yes	yes	yes	yes
Random presentation of questions	no	no	yes	no
Field validation	yes	no	yes	no
Reports and graphics	yes	yes	yes	yes
Help services	online, tutorial	online	online, tutorial, help line	online, help line
Data dictionary	no	no	no	no
Edit or delete data	no	delete only	yes	delete only
Spell check	no	yes	no	no
Export survey to word-processing software	no	no	no	no
Export results to spreadsheet software	yes	yes	yes	yes

($): feature is available for a cost beyond the basic membership

Table 3. Assessment of nonweb-based survey software package features

	SelectSurveyASP	Epi Info	CS Pro	EZ-Text	AnSWR	SurveyGold	QDS	Sumquest	StatPac Survey Software	Sphinxsurvey
Survey Size										
Number of questions	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	n/a	unlimited	n/a
Number of responses	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited	n/a	10,000,000	n/a
Survey Type	web, paper	paper	paper, CATI, CAPI	paper	paper	web, email, paper, CATI, CAPI	paper, CATI, CAPI, ACASI, HAPI	web, email paper, CATI, CAPI	web, email, paper, CATI, CAPI	web, paper, CATI
Multiple Languages	yes	yes	yes	n/a	n/a	yes	yes	n/a	yes	n/a
Translation	no	yes	no	no	no	no	no	n/a	no	n/a
Type of Data	quantitative	quantitative	quantitative	qualitative	qualitative	quantitative	quantitative	quantitative	quantitative & qualitative	quantitative
Data Verification	quantitative	n/a	n/a	yes	yes	n/a	yes	yes	yes	n/a
Skip Patterns	yes	yes	yes	no	no	yes	yes	yes	yes	yes
Required Response	yes	n/a	n/a	n/a	n/a	yes	n/a	n/a	yes	yes
Missing Response Allowed	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Random Presentation of Questions	yes	n/a	n/a	n/a	n/a	yes	n/a	yes	yes	yes
Field Validation	yes	yes	yes	yes	yes	yes	yes	n/a	yes	yes
Statistics	none	descriptive, regression, survival	no	qualitative	qualitative	no	no	descriptive	descriptive, regression, qualitative	descriptive, regression, qualitative
Reports and Graphics	yes	yes	yes	no	yes	yes	n/a	yes	yes	yes
Editing Reports	n/a	yes	no	no	yes	yes	n/a	yes	yes	n/a
Help Services	online, manual	tutorial, online, help line, tech support	manual, tutorial, online, training	manual, tutorial, online	manual, publications	manual, tutorial, online	manual, tutorial, online, in person	manual, tutorial, online, toll-free helpline	manual, tutorial, online	manual, in person
Import Survey or Data	n/a	data	n/a	data	data	data	n/a	both	both	data
Data Dictionary	no	yes	yes	yes	yes	yes	yes	no	yes	yes
Edit or Delete Data	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Spell Check	no	no	no	yes	yes	yes	no	n/a	yes	n/a

CATI: computer-assisted telephone interview, CAPI: computer-assisted person interview, n/a: not available

Questionnaire Administration

Almost any option will work for an in-person interview. However, if online or computer-assisted questionnaires are necessary for research design, Zoomerang is the best web-based option, and SurveyGold or StatPac are the best-value nonweb-based options.

Language

All software offer options for questionnaire development in multiple languages; however, EpiInfo and CSPro are free and offer translation functions.

Qualitative Data

For qualitative studies, consider AnSWR (best for analyses and reports) or EZ-Text.

Analytical Features

Among the web-based software, QuestionPro offers the most options for statistics without export of data to spreadsheets or statistical software. EpiInfo and StatPac are best among the nonweb-based software.

Complex Questionnaire Design

For ability to handle a complex questionnaire design, including skip patterns, required response, missing responses, random presentation of questions and field validation, the best web-based options are QuestionPro or SurveySelectASP. The best nonweb-based options are CSPro or EpiInfo.

Resources for Research Methods

Web-based software programs are not a good option if additional guidance on how to conduct a survey or design a survey questionnaire is needed. Among the nonweb-based software, consider EpiInfo, CSPro or StatPac; or EZ-Text or AnSWR for qualitative studies. However, guidance provided by this software is not sufficient to prepare researchers on how to conduct health surveys, including the development of the questionnaire, sample design and analysis of the data. Survey research methods coursework, guidance by experienced survey researchers, and additional readings[20-33] are also needed to improve the quality of surveys, optimize response rates and reduce respondent burden. Health survey research methods courses are offered by health professional schools, programs such as the University of Maryland–University of Michigan–Westat Joint Program on Survey Methodology, and professional associations such as the American Statistical Association and the American Association of Public Opinion Research.

Bias

The impact of Internet security on response rates and bias should be considered. E-mail invitations may be mistaken as containing a virus or SPAM and subsequently deleted or quarantined.

Evidence of prior studies and publications oftentimes constitutes major criteria for federal funding, career awards, promotion and tenure decisions. Underrepresented racial and ethnic minority researchers disproportionately face a number of problems in achieving the required publication and funding history, including lack of resources. To partly address this lack of resources, this paper has identified free and low-cost survey software that can be used by investigators knowledgeable and experienced in health survey research methods to conduct pilot studies, thereby enhancing opportunities for promotion and additional research awards.

ACKNOWLEDGEMENTS

We acknowledge Dr. Kate Tracey for her comments on an earlier draft of the manuscript and the research assistance of Vanessa Lopes.

REFERENCES

1. Gavin JR III. Developing the physician-scientist, Part 5: Interview with James R. Gavin III, MD, PhD. *J Investig Med*. 2005;53(5):232-234.

2. Institute of Medicine. In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce. Washington, DC: National Academies Press; 2004.

3. Association of American Medical Colleges. Minorities in Medical Education: Facts & Figures 2005. Association of American Medical Colleges, Division of Diversity Policy and Programs. Spring 2005.

4. Palepu A, Carr PL, Friedman RH, et al. Minority faculty and academic rank in medicine. *JAMA*. 1998;280(9):767-771.

5. Fang D, Moy E, Colburn L, Hurley J. Racial and ethnic disparities in faculty promotion in academic medicine. *JAMA*. 2000; 284(9):1085-1092.

6. Surveymonkey.com. www.surveymonkey.com. Accessed 10/03/05.

7. Problem Free Ltd. freeonlinesurveys.com. www.freeonlinesurveys.com/. Accessed 10/03/05.

8. QuestionPro Survey Software. Questionpro. www.questionpro.com/. Accessed 10/03/05.

9. MarketTools. Inc. Zoomerang. http://info.zoomerang.com/. Accessed 10/03/05.

10. ClassApps.com. SelectSurveyASP. www.classapps.com/SelectSurveyASPOverview.asp. Accessed 10/03/05.

11. Centers for Disease Control and Prevention Epidemiology Program Office, Division of Public Health Surveillance and Informatics. What Is Epi Info™? www.cdc.gov/hiv/software.htm. Accessed 10/03/05.

12. U.S. Census Bureau, Population Division International Programs Center. Census and Survey Processing System (CSPro). www.census.gov/ipc/www/cspro/index.html. Accessed 10/03/05.

13. Centers for Disease Control and Prevention, Division of HIV/AIDS Prevention. CDC EZ-Text. www.cdc.gov/hiv/software/ez-text.htm#pubs. Accessed 10/03/05.

14. Centers for Disease Control and Prevention, Division of HIV/AIDS Prevention. AnSWR: Analysis Software for Word-based Records. www.cdc.gov/hiv/software/answr.htm. Accessed 10/03/05.

15. Golden Hills Software Inc. SurveyGold. http://surveygold.com/. Accessed 10/03/05.

16. Nova Research Co. Questionnaire Development System (QDS). www.novaresearch.com/Products/QDS/whatIsQDS.cfm. Accessed 10/03/05.

17. SumQuest. SumQuest Survey Software. www.sumquest.com/

18. StatPac Inc. StatPac Survey Software. www.statpac.com/. Accessed 10/03/05.

19. Sphinx Development UK. SphinxSurvey. www.sphinxdevelopment.co.uk/. Accessed 10/03/05.

20. American Statistical Association. Brochures about survey research. www.amstat.org/sections/srms/whatsurvey.html. Accessed 10/03/05.

21. Aday LA, Cornelius LJ. *Designing and Conducting Health Surveys: a Comprehensive Guide*. 3rd ed. San Francisco, CA: Jossey-Bass Publishers; 2006.

22. Tourangeau R, Rips LJ, Rasinski K. The Psychology of Survey Response. Cambridge, UK: Cambridge University Press; 2000:50-61.

23. Sudman S, Bradburn NM, Schwarz N. Answering a Survey Question: Cognitive and Communicative Processes. In: Thinking about answers: the application of cognitive processes to survey methodology. San Francisco, CA: Jossey-Bass Publishers; 1996:55-79.

24. Fowler FJ. How unclear terms affect survey data. *Public Opinion Quarterly*. 1992;56:218-231.

25. Kalton G, Schuman H. The effect of the question on survey response: a review. *J.R. Statist Soc. A*. 1982;145(1):42-73.

26. Dillman D. Constructing the Questionnaire. In: Mail and Internet Surveys: The Tailored Design Method. 2000:79-94.

27. Torangeau R. Smith TW. Asking sensitive questions: the impact of data collection mode, question format, and question context. *Public Opinion Quarterly*. 1996;60:275-304.

28. Groves RM. Theories and methods of telephone surveys. *Annu Rev. Sociol*. 1990;16:221-240.

29. Couper MP, Nichols WL. The history and development of computer assisted survey information collection methods. In: Couper MP, Baker RP, Bethlehem J, eds, et al. Computer Assisted Survey Information Collection. John Wiley & Sons Inc.; 1998:1-21.

30. Couper MP. Web surveys: a review of issues and approaches. *Public Opinion Quarterly* 2000;64:464-494.

31. Schonlau M, Fricker RD, Elliott MN. Summary. In: Conducting research surveys via email and the web. RAND; 2001:xiii-xx. www.rand.org/publications/MR/MR1480/. Accessed 10/03/05.

32. Willis G. *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Thousand Oaks, CA: Sage Publications; 2004.

33. Korn EL. Graubard BI. *Analysis of Health Surveys*. Wiley-Interscience; 1999. ■

CAREER OPPORTUNITY

Chief of Hematology/Medical Oncology, Department of Medicine & Deputy Director Howard University Cancer Center.
The Department of Medicine and the Cancer Center at Howard University are seeking a full-time Board Certified Hematologist/Oncologist to serve as chief of the Hematology/Medical Oncology Section and Deputy Director of the Cancer Center. The successful applicant will have experience and expertise in building a successful oncologic clinical research portfolio within a university teaching hospital setting. The applicant must qualify for appointment at the associate professor/ professor rank, and must be Board Certified in Hematology and Oncology.

Chief, Endocrinology Section
Howard University's Department of Medicine is seeking an Endocrinologist to serve as Chief of that Division. The successful applicant will have had experience in an academic medical center with an Endocrinology Training Program. The applicant must qualify for appointment at the associate professor/professor rank and be currently Board Certified in Endocrinology. A Washington, D.C. license is required. Duties will include serving as program director of the fellowship training program along with improving and expanding the division's clinical and research capabilities.

Assistant/Associate Professor – Cardiology
Howard University's Cardiology Division is seeking two cardiologists at the assistant/associate professor or professor rank. Applicants must be Board Certified in Cardiology. A Washington, D.C. license is required. An interventional cardiologist with expertise in angiography and stenting is being sought for one position. A second position is available for a non-interventional cardiologist with interests in preventive cardiology. Opportunities for clinical research exist.

Send CV and cover letter to Duane T. Smoot, M.D., Chair, Department of Medicine, Howard University Hospital, 2041 Georgia Avenue, N.W., Washington, D.C. 20060